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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/762,719	02/09/2001	Gary J. Jorgensen	NREL 97-33	7599
23712	7590	12/17/2003	EXAMINER	
PAUL J WHITE, SENIOR COUNSEL NATIONAL RENEWABLE ENERGY LABORATORY (NREL) 1617 COLE BOULEVARD GOLDEN, CO 80401-3393			CHANG, AUDREY Y	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/762,719

Applicant(s)

JORGENSEN ET AL.

Examiner

Audrey Y. Chang

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2872

## DETAILED ACTION

### *Remark*

- The application *has been abandoned* on December 7, 2002 since the applicant **has failed** to response to Office Action dated February 7, 2002. The applicant has then filed petition for reviving the application on January 14, 2003. The petition has been granted on January 23, 2003.
- This Office Action is response to applicant's amendment filed on January 14, 2003, which has been entered as paper number 7.
- By this amendment, the applicant has canceled claims 1-11 and has newly added claims 12-22.
- Claims 12-22 remain pending in this application.
- The rejections to claims 1-11 under 35 USC 112, first and second paragraphs set forth in the previous Office Action are withdrawn in response to applicant's amendment.

### *Response to Amendment*

1. The amendment filed on January 14, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: **The newly submitted claims 12 and 19 recite the phrase "a transparent multi-polymer film of 40-60 g/m<sup>2</sup>".** The original (now canceled) claims 1 and 8, referred this value as the **"thickness"** but the amendment has set apart the value from the thickness. Furthermore, the specification fails to give **a positive support** and fails to **give explicitly teachings** for such feature.

Applicant is required to cancel the new matter in the reply to this Office Action.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

Art Unit: 2872

pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 12-22 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The reasons for rejection based on the newly added feature are described in the paragraph above.

#### ***Claim Objections***

4. Claims 12-22 are objected to because of the following informalities:

(1) The phrase "*a transparent multi-polymer film of 40-60 g/m<sup>2</sup>*" recited in claims 12 and 19 is confusing and indefinite since it is not clear what feature (thickness, weight or density), are referred here. The specification also fails to give positive support and description for such feature. It therefore makes the scope of the claims unclear.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2872

6. Claims 12-13, 15-18, 19-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Roche et al (PN. 4,646,714) in view of the patent issued to Schissel et al (PN. 5,361,172).

Roche et al teaches a *corrosion-resistant silver mirror* that is comprised of a *substrate* (21) made of *polyester foil*, a *thin specularly reflective silver layer* (13), a *protective polymeric layer* (15) and a *second polymeric layer containing ultraviolet absorber* (16) *overlying* the protective polymeric layer, serves as the protective shield layer, (please see Figure 2, column 6). Roche et al teaches that the second polymeric layer containing the ultraviolet absorber is an *acrylic polymer layer*, (please see column 6, lines 65-69). Roche et al teaches explicitly that the silver mirror is for use in solar collectors or reflectors, (please see column 1 lines 10-11).

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the thickness of the UV absorbing polymeric layer is as claimed. However it is a general knowledge in the art that by increasing the thickness of the protective shield the silver mirror will be better protected from corrosion and will have better ultraviolet light absorption properties. It would then have been obvious to one skilled in the art to modify the protective shield layer to obtain the desired thickness for the benefit of achieving desired corrosion resistance and ultraviolet absorbing property. Since it has been held when the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Furthermore, Schissel et al in the same field of endeavor teaches to use an *acrylic polymeric layer* having *ultraviolet absorbers* as protective layer for a *silver mirror* wherein the thickness of polymeric layer is about 3.5 mil, (i.e. it is between 2-8 mil), (please see columns 3-4). Schissel et al teaches explicitly that by having this thickness the mirror is capable of being protected from corrosion yet achieves high hemispherical reflectance. It would then have been obvious to one skilled in the art to apply the teachings of Schissel et al to modify the protective shield layer to have a thickness of 3.5 mil for

Art Unit: 2872

the benefit of achieving good corrosion protection and good hemispherical reflectance for the silver mirror. It is implicitly true that the thickness of 3.5 mil of the acrylic layer will result the weight limitation of 40-60 g/m<sup>2</sup> as claimed.

With regard to claims 15-18 and 22, Roche et al teaches that the second polymeric layer having the UV absorber is *coated* on the protective polymeric layer but it does not teach explicitly that the coating process are the process recited in the claims. However the *product-by-process limitations* of the claims are given *no patentable weight* per se but are only given weight in terms of how they distinguish the final product. In this cases, the processes of adhesive, solvent weld, thermal weld and ultrasonic weld are all well-known processes in the art for attaching the polymeric layer to the other layer and they therefore do not patently distinguish the silver mirror with the UV absorbing polymeric layer of the instant application from the prior art silver mirror with the UV absorbing polymeric layer, (please see MPEP section 2173.05(p)). With regard to claim 22, since gluing, adhesive or welding are well-known process for coating the UV absorbing polymeric layer such modifications would have been obvious variations to one skilled in the art for the benefit of attaching the layer to the protective layer of the silver mirror.

**7. Claims 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Roche et al and Schissel et al as applied to claims 12 and 19 above, and further in view of the patent issued to Sugisaki et al (PN. 5,681,642).**

The corrosion-resistant silver mirror with ultraviolet absorbing polymeric layer taught by Roche et al in combination with the teachings of Schissel et al as described for claims 12 and 19 above have met all the limitations of the claims. Roche et al teaches that the polymeric material for the UV absorbing layer is acrylic polymer but it does not teach explicitly that this polymeric layer may also comprise other polymers as claimed. However UV absorbing film with good corrosion-resistant made by including UV

Art Unit: 2872

absorber in polymeric layer such as polycarbonate or polyester is very well known in the art as demonstrated by the teachings of Sugisaki et al, (please see column 3, lines 34-69). It would then have been obvious to one skilled in the art to apply the teachings of Sugisaki et al to make the UV absorbing polymeric layer with polycarbonate or polyester polymeric layer for the benefit of providing alternative UV absorbing polymeric layer for the silver mirror.

***Response to Arguments***

8. Applicant's arguments filed on January 14, 2003 have been fully considered but they are not persuasive. *The newly submitted claims 12-22 have been fully considered and they are rejected for the reasons stated above.*

9. In response to applicant's arguments concerning corrosion resistance, of the cited Roche et al reference, is done "by employing a bound mercaptide type sulfur to bond with a fraction with silver atoms at the distal end of the substrate", which differs from the instant application, the examiner respectfully disagrees. Roche et al teaches *explicitly* that the acrylic polymer layer comprises corrosion inhibitor for providing corrosion resistance to the silver mirror, (please see column 3).

10. In response to applicant's arguments concerning the reflectance and the high optical clarity, the cited Roche et al reference teaches about a "highly reflective" silver mirror, and the cited Schissel et al reference teaches about a silver mirror having a semispherical reflectance of 92% which meets the features concerning reflectance and high optical clarity.

11. In response to applicant's argument that cited Sugisaki et al is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the reference is relied on to provide the teachings of other polymeric layer materials having ultraviolet absorbers and good-corrosion resistant. It is understood in the art that the

Art Unit: 2872

ultraviolet absorbing and corrosion resistant properties of the layer materials are not limited or changed by the art of application.

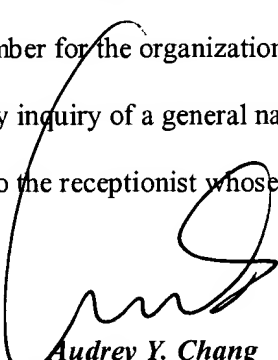
*Conclusion*

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Audrey Y. Chang  
Primary Examiner  
Art Unit 2872

A. Chang, Ph.D.